

Notice of Allowability

Application No.

10/628,318

Examiner

Tony Chuo

Applicant(s)

O'HARA ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/16/07.
2. ☒ The allowed claim(s) is/are 1-15, 17-27, and 29-45.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the Specification:

a) please replace the paragraph after the heading "CROSS-REFERENCE TO RELATED APPLICATIONS" with the following paragraph:

"This application is related to commonly assigned U.S. Patent Application Serial Nos. 10/628,316, filed July 28, 2003, and 10/628,856, filed July 28, 2003, which issued as U.S. Patent No. 6,967,039, the disclosures of which are incorporated herein by reference. The present application is also related to commonly assigned U.S. Patent Application Serial No. 10/345,121, filed January 15, 2003, now abandoned."

2. The following is an examiner's statement of reasons for allowance:

Regarding independent claims 1 and 33, Isono et al teaches a fuel cell comprising: anode "120", cathode "110" and solid polymer membrane "101", a first reactant input "fuel gas" and first product output "fuel gas" in communication with first flow field region: fuel gas channels "141", a first porous gas diffusion layer "122", a second reactant input "air" and second product output "air" in communication with second flow field region: oxidizer gas channels "131", a second porous gas diffusion

Art Unit: 1745

layer "112", a region of high water concentration "115B", a region of low water concentration "115A", a mesoporous layer: mixture layer "113" or "123" comprising a hydrophilic carbonaceous component (carbon black) and a hydrophobic component (PTFE), a mesoporous layer occupying a greater portion of one of high water region and low water region relative to other of high water region and low water region; and a mesoporous layer that is carried along a reduced thickness portion of the gas diffusion layer (See Figure 6, column 6, lines 18-20, and column 12, lines 10-12). However, Isono et al does not expressly teach a mesoporous layer that is carried along only the reduced thickness portion of the at least one of the first and second diffusion media substrates.

Regarding independent claim 42, Isono et al does not expressly teach a mesoporous layer comprising a region of increased porosity relative to a remaining portion of the mesoporous layer wherein the region of increased porosity of the mesoporous layer occupies a substantially greater portion of the high water region relative to the low water region.

Regarding independent claims 44 and 45, Isono et al does not expressly teach a mesoporous layer that at least partially infiltrates at least one of the first and second diffusion media substrates to a depth of greater than 0 μm to about 10 μm in the high H_2O regions and a depth of greater than 0 μm to about 25 μm in the low H_2O regions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 7:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC


JONATHAN CREPEAU
PRIMARY EXAMINER